Lee Garden Eight: A Landmark of Sustainability and Digital Collaboration

COMPANY
Hysan Development Company Limited
Chinachem Group
Hip Hing Construction Company Limited

PROJECT
Lee Garden Eight

LOCATION
8 Caroline Hill Rd, Causeway Bay

TYPE
Commercial Building

SCHEDULED TIME OF COMPLETION
Q3 2026

"The project team has faced numerous challenges, and has used advanced technologies and softwares to effectively tackle them. Among these, BIM has proven invaluable by simplifying design coordination, minimizing construction waste, optimizing resource allocation, and mitigating risks before on-site work begins. This approach resolves potential conflicts and supports more informed decision-making."

–Dicky WOO
Deputy Project Manager,
Hip Hing Construction Company Limited

BIM PARTNERS
Foster + Partners Limited
Ronald Lu & Partners (Hong Kong) Limited
Ove Arup & Partners Hong Kong Limited
WSP (Asia) Limited
Woods Bagot Asia Limited
Inhabit Asia Limited
ATAL Building Services Engineering Limited
Jangho Group Company Limited

AUTODESK PRODUCTS USED
Autodesk® 3ds Max®
Autodesk® AutoCAD®
Autodesk® Build
Autodesk® Civil 3D®
Autodesk Construction Cloud®
Autodesk® Docs
Autodesk® Forma
Autodesk® InfraWorks
Autodesk® Navisworks®
Autodesk® ReCap® Pro
Autodesk® Revit®
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Autodesk® Vehicle Tracking

Lee Garden Eight Development View
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Lee Garden Eight is located at 8 Caroline Hill Road, Causeway Bay, Hong Kong. It is a high-end mixed-use commercial development project situated in one of Hong Kong's most vibrant areas and is designed to become an innovative hub for urban living, work, and social interaction. The project is jointly developed by Hysan Development Company Limited and Chinachem Group through a strategic alliance, serving as the latest expansion of the Lee Gardens Area, integrating cutting-edge architectural design with the local dynamic community.

Positioned as a new-generation urban landmark, Lee Garden Eight offers over 100,000 square feet of retail space and over 900,000 square feet of office space, catering to diverse needs such as F&B, trendy technology, and lifestyle creative industries. The project features more than 60,000 square feet of large-scale green public open spaces, creating a vibrant urban oasis that reshapes work, retail and lifestyle experiences. An integrated footbridge and covered pedestrian walkway system enhances the connectivity and pedestrian convenience throughout the entire Lee Gardens Area. By seamlessly blending indoor and outdoor environments, it encourages inspiration, exploration and discovery, relaxation, and the establishment of meaningful interpersonal connections.

Sustainability runs through the core of the project, emphasizing green and biophilic design, indoor-outdoor connectivity, and environmentally friendly building principles, setting new standards for Hong Kong's urban progress. In collaboration with the internationally renowned architectural firm Foster + Partners, the project prioritizes energy efficiency, natural lighting, and community-oriented spaces to create a more livable and environmentally responsible future. Lee Garden Eight not only continues the traditional heritage of Lee Gardens but also transforms it into a paradigm of sustainable innovation, expected to be completed in 2026.

High proportion of MEP DfMA (MiMEP) design and installation

The project faced significant challenges in implementing a high proportion of MiMEP design and installation, with over 7,400 prefabricated MEP modules delivered via MiMEP methods, covering more than 80% of the building services across three towers and podium. The primary difficulty lay in achieving factory-ready standardization while preserving flexibility for sequencing, site constraints, and interfaces in a dense urban environment, all with minimal rework and disruption.

To address this, the team adopted an early and federated design approach, coordinating MEP models within a unified environment from the outset. Multi-disciplinary reviews involving architecture, structure, façade, and building services were conducted on a fixed cadence, allowing the Design Information Model (DIM) to evolve predictably into a constructible Construction Information Model (CIM). Standardized module families were developed for elements like VAV units, valves, riser sections, and branch modules, incorporating repeatable dimensions, connection points, service clearances, and maintenance access rules to enable "swap ability" and simplify sequence planning across floors and zones. Rule-based quality gates were implemented with automated checks to validate headroom, access, fire/safety clearances, and maintainability, managed through a structured issue-tracking workflow for rapid turnaround and accountability. Once designs passed these checks, discipline leads produced Fabrication Information Models (FIM) with fully coordinated details, connection specs, lifting points, and manufacturing tags, ensuring factories received "born ready" data without manual remapping. These efforts yielded impressive outcomes: program acceleration through MiMEP adoption and clean handovers saved approximately 5% in MEP construction time compared to traditional methods; on-site MEP installation manpower was reduced by around 30%; construction waste related to MEP was cut by roughly 70%; over 10,000 clashes and issues were identified and resolved during design coordination; and quality and safety improved due to factory tolerances, consistent quality, and reduced on-site risks like work at height, hot works, and congested zones through modular assemblies and fewer in-situ fabrications.

Complex coordination with an adjacent project (Common boundary with back-to-back)

Another major hurdle was the complex coordination with an adjacent project, as Lee Garden Eight shared over 200 meters of common site boundary with a neighboring government project, featuring overlapping construction periods, interdependent basement excavation, and shared utility corridors. Geotechnical stability hinged on harmonizing excavation sequences, temporary lateral support (ELS), and structural interfaces, where late changes or misalignments could cause schedule conflicts, rework, and increased community impact. The approach involved joint phasing and interface planning, with both teams establishing a collaborative analysis to visualize and align critical sequences such as excavation stages, ELS installation and removal, utility diversions, and structural pours. High-fidelity existing conditions were captured using laser scanning—mandated by Hip Hing's policy since 2015—for basement ELS systems, with high-density scans processed and federated into the coordination environment to validate as-built conditions against design intent. Given the high-security nature of the government facility and differences in tools and versions, a "interfaces only" exchange was agreed upon, using lean, review-ready models via Autodesk Construction Cloud (ACC). Real-time coordination was maintained through regularly scheduled reviews, providing early warnings for re-sequencing to ensure area-wide geotechnical stability. Outcomes included effective stability and risk mitigation by preventing clashes between ELS and basement structures; schedule coherence through harmonized overlapping works, eliminating cascading delays and protecting sensitive assets like an Old and Valuable Tree between sites.

Traffic and logistics challenges

Traffic and logistics presented additional challenges in one of Hong Kong's busiest districts, with high traffic flow, narrow streets, and limited laydown and access points, risking congestion, delayed deliveries, safety issues for traffic marshals, and community disruption during peak hours. The team countered this with data-driven traffic management, integrating city GIS information to forecast patterns and plan strategic diversions, iterating a Traffic Management Plan based on real-world data and stakeholder feedback. Optimized access geometry was achieved through sweep path analyses to refine site gates, turning radii, and approach paths, ensuring efficient entry and exit for heavy vehicles without disruptions. As a result, peak-hour relief was realized by reducing or shifting delivery windows, lowering truck movement intensity and road occupation time; community impact was minimized by containing operations within optimal windows and aligned routes, reducing congestion and nuisance to residents and businesses.

Pedestrian footbridge connection: precision, safety, and minimal disruption

The pedestrian footbridge connection to Lee Garden Six across Leighton Road demanded millimeter-level accuracy, safety overnight installation, and minimal road closures in a dense live environment. Reality capture integrated 3D scans of the surroundings with the coordinated design model, planning control points, crane pads, rigging zones, and exclusion areas virtually. Installation simulations animated lift sequences, rotations, and placements, aligning engineers, supervisors, and safety teams on method statements, contingencies, and timings. This led to fewer unknowns, with crews briefed via visual simulations to reduce ambiguity and preserve safety; safer execution minimized surprises, time at height, and risks to public areas.

Digital assurance, automation, and team enablement

Finally, digital assurance, automation, and team enablement tackled the scale's volume of design iterations, drawing production, and repetitive tasks that risked errors and fatigue from manual workflows. Automated checks enhanced model integrity for headroom, clearances, and connections, routing issues through workflows with fix instructions. Visual programming automated repetitive tasks like E&M provision placement, reducing manual effort. Drawing production was accelerated via automation pipelines from validated models, cutting turnaround and variability. Immersive BIM Cave reviews with point cloud overlays enabled intuitive participation, speeding decisions and reducing late changes. Outcomes included faster mass drawing production with consistency; reduced coordination cycles for repetitive items, protecting schedule and quality; and faster consensus in reviews, fewer late changes, and improved stakeholder trust.

Why these solutions matter

These solutions mattered because, across MiMEP at scale, cross-project coordination, logistics, precision installations, and digitalization, the team leveraged federated coordination, reality capture, simulation, and automation to shift risks earlier in the process, where resolution is more streamlined and safer. Community impacts were minimized through targeted planning and overnight works, while geotechnical stability and interfaces were proactively managed. Collectively, these practices transformed design certainty into delivery certainty, delivering gains in time, cost, waste, safety, and stakeholder confidence.

Footbridge Connectivity to 2/F Podium
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Office Tower Façade
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Advanced Visulization for Integrated BIM Model
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Towers 1 & 2
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Covered Landscape Bridge
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Towers 1 & 2 Office Drop-Off
Image Courtesy of Hysan Development Company Limited and Chinachem Group

Ground Floor “Bar Street”
Image Courtesy of Hysan Development Company Limited and Chinachem Group

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